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#2/a

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS	:	ISAMU UEMASU ET AL
SERIAL NO.	:	TO BE ASSIGNED
FILED	:	HEREWITH
FOR	:	METHOD AND EQUIPMENT FOR CONTINUOUS AND SELECTIVE INCLUSION SEPARATION
ART UNIT	:	TO BE ASSIGNED
EXAMINER	:	TO BE ASSIGNED

October 26, 2001

Hon. Commissioner of Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

SIR:

Prior to examination, please amend the above-identified application as follows:

IN THE DESCRIPTION:

Last paragraph beginning on page 7, please change as follows:

a1

Organic solvents hardly soluble in water and hardly capable of forming an inclusion complex with a cyclodextrin are preferred as the organic solvent for use in dissociating and extracting a compound entrapped in the aqueous cyclodextrin phase from the cyclodextrin.

A1 cont.

Examples of such organic solvents include ethers such as diethyl ether, diisopropyl ether, and diisoamyl ether; hydrocarbons such as liquefied propane gas, L P G, liquefied butane gas, pentanes, hexanes, heptanes, and mesitylene; and halogenated hydrocarbons such as dichloromethane. Incidentally, in the case of an extraction solvent highly volatile with a boiling point of at least ordinary temperature and comparatively easily soluble in the aqueous solution of cyclodextrin like diethyl ether, it is preferred to repeat at suitable time intervals the procedure of effecting extraction by stirring for a period of a few seconds to several tens of seconds after addition of the extraction solvent and then recovering the resulting organic solvent layer. In this case, as the extraction solvent in continuing the operation after recovery of the solvent layer, either virgin solvent may be replenished, or the solvent separated from the compound(s) as the object(s) of separation through distillation or the like of the solvent layer may be reused.

Last paragraph beginning on page 8, please change as follows:

A2

When a low-boiling solvent boiling below ordinary temperature, e.g., liquefied petroleum gas (LPG), liquefied propane gas or liquefied butane gas, is used as the extraction solvent, a raw material containing a compound(s) to be separated therefrom and an aqueous solution of inclusion-complexing agent are placed in a reaction vessel such as a U-shaped tube or an H-shaped tube in an inclusion separator provided with a pressurizing means, e.g., an apparatus having a reaction vessel placed in an autoclave, and the low-boiling solvent is then placed in the reaction vessel under pressure, followed by stirring to perform a separation operation. After the separation operation, the separator is depressurized to recover the vapor of the low-boiling

a2cont

solvent. During the course of depressurization, heat being generated during liquefaction of the low-boiling solvent vapor through pressurization may be utilized as an (ancillary) means for preventing temperature drop of the organic phase and the aqueous phase in the reaction vessel in keeping with evaporation of the low-boiling solvent (means particularly for preventing the aqueous phase from freezing). The liquefied low-boiling solvent can be reused as the extraction solvent. The extracted organic compound(s) remaining in the reaction vessel is recovered. Alternatively, the organic phase after the extraction operation may be first withdrawn from the reaction vessel into a pressure vessel from which the low-boiling solvent vapor is recovered, instead of direct recovery of the low-boiling solvent vapor from the reaction vessel. In this case as well, heat being generated during pressurization and liquefaction of the low-boiling solvent vapor may of course be used as an (ancillary) means for preventing temperature drop of the residual organic phase(s) and the aqueous phase. Advantages of using a low-boiling solvent boiling below ordinary temperature lie in that a great difference in boiling point between a compound as an object of separation like axylene isomer and an extraction solvent hardly allows the low-boiling solvent to mix in the separated compound, and in that a large-scale and elaborate distillation apparatus may be dispensed with in performing an industrial separation process according to the present invention.

Page 17, Example 5, please change as follows:

a3

Example 5

250 ml of a 10 wt.% aqueous solution of a glucosyl- α - cyclodextrin mixture was placed